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HEADSTART OPERATIONAL FIELD ANALYSIS. PROGRESS REPORT IV.

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THIS REPORT IS THE FOURTH PROGRESS REPORT OF A STUDY OF HOW A PUPIL'S ACADEMIC ACHIEVEMENT IS AFFECTED BY PARTICIPATING IN A PRESCHOOL HEADSTART PROGRAM. THE ACHIEVEMENT OF THE HEADSTART GROUP IS BEING COMPARED WITH THE ACHIEVEMENT OF PUPILS WHO RECEIVED NO PRESCHOOL PROGRAM. THE PRESCHOOL INVENTORY TEST WAS USED TO MEASURE PUPIL ACHIEVEMENT IN 5 CONCEPT AREAS, (1) COLOR, (2) FORM, (3) GROUPING, (4) ORDERING, AND (5) TIME. IT WAS GIVEN AS A PRE-TEST AT THE BEGINNING OF KINDERGARTEN AND AS A POST-TEST AT THE END OF KINDERGARTEN. THE RESULTS SHOWED THAT BOTH HEADSTART AND NON-HEADSTART GROUPS ACHIEVED SIGNIFICANT ACADEMIC PROGRESS DURING KINDERGARTEN. THE HEADSTART GROUP SHOWED A GREATER GAIN WHICH, HOWEVER, WAS NOT SIGNIFICANT. IN ADDITION TO THE INVENTORY, A TEACHER AND AN OBSERVER RATED THE PUPILS AS TO GAIN, LOSS, OR NO-CHANGE IN DEMONSTRATED CONCEPT ABILITY DURING THE YEAR. NO SIGNIFICANT DIFFERENCES IN ATTAINMENT BETWEEN THE 2 GROUPS WERE FOUND WITH THE EXCEPTION THAT THE TEACHER FOUND A SIGNIFICANTLY HIGHER GAIN IN GROUPING CONCEPT ABILITY BY THE HEADSTART GROUP. THE OBSERVER DID NOT FIND A SIGNIFICANT DIFFERENCE. (WD)

Headstart Operational Field Analysis*

PROGRESS REPORT IV

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This report will cover the following activities during the period from April 15, 1966 to August 1, 1966:

I Statement of Current Activities

II. Results

III. Conclusions

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*This is the fourth progress report related to Contract No. OEO-512 PR No. 353; Appropriation 1160500.

INTRODUCTION

This Progress Report will be a rather brief one since we are predominantly collecting and organizing the data. Progress Report III gave a rather detailed description of the interim analysis and therefore minimal time will be spent on further discussion of preliminary results.

I. Statement of Current Activities

A. Data Collection

During this period the following kinds of data were assembled:

1. The final ratings were made by the teachers on the 190 extensive Headstart and Non-Headstart children.
2. The final observations and ratings were made by the observers on the 190 extensive HS and NHS children.
3. Two more observations and ratings were completed on the fifty intensive HS and NH3 children.
4. All of the children in the sample were administered the long form of the Caldwell Preschool Inventory as well as the Peabody Picture Vocabulary Test.
5. We have been interested in relating the changes in concept attainment and achievement as represented in the Preschool Inventory with certain data that would be supplied by the Cleveland Public School System. It has been established in the state of Ohio that such information is not available for research purposes to professionals other than school personnel. At this time the Educational Research Department of the Cleveland Public Schools is collecting the following information for our use:
   - A. Sibling performance as measured by the Kuhlman-Anderson test score of our subjects next oldest sibling in the same elementary school.
   - B. The main breadwinner's occupation.
   - C. The economic status as represented by our subjects participation in the free milk program.
   - D. The raw score on the Lee-Clark Reading Readiness Test.

   This information is being collected on all subjects and will be used for comparison purposes with the primary variables about concept attainment. In addition, further clarification of whether or not there were some selective factors resulting in a built-in bias in favor of the HS children will be further investigated. Previous examination on the basis of the Preschool Inventory Performance has clearly indicated that the HS and NHS children performed at a similar level at the outset of their educational experiences. To retain anonymity, only group relationships will be available through the total tabulations on the 250 subjects.

6. In the Eleanor Serba study of comparing three groups of children, viz., HS children, a group with no preschool experience, and a group of children with a full semester of preschool experience within the Cleveland Public Schools, the post-testing was completed. This included the administration of the long form of the Caldwell Preschool Inventory, the Peabody Picture Vocabulary Test, and the Lee-Clark Reading Readiness Test.
7. Data Collection
   One of the research assistants became interested in the area of skills that contribute to reading readiness. A rating scale was developed to measure visual, auditory and symbol learning skills and was applied to a random sample of subjects. The scores based on this rating scale will be compared with the actual reading readiness scores and concept attainment levels that the child achieved at the completion of his kindergarten year. These ratings were completed during June.

B. Tabulation of Data

1. The items on the Caldwell Preschool Inventory Test were divided into the five major concept areas involved in this study, viz., color, form, ordering, grouping, and time. The pre- and post-tests were scored according to this categorization. The scores will be compared with the initial and terminal ratings on concept attainment as a measure of concurrent validity.
2. Change scores have been assigned to each of the extensive subjects to determine the direction of change for both the three teacher ratings and the four observer ratings.
3. The final scoring and frequency tabulations of the observations of the intensive cases was also completed. This is the tabulation which will be used as the empirical representation of concept development in this sample of children.

II. Results

A. Examination of total sample regarding academic achievement during the kindergarten year.

We have hypothesized that there would be significant progress between the time of pre-testing on the Preschool Inventory (date of testing HS children July 1965 and the NHS children September 1965) and the post-testing which was completed on all subjects in June 1966. We wished to determine whether HS children would make more progress than NHS.

Table I shows that the Kindergart children progressed from a mean score of 151.01 to a mean score of 190.19. In the 104 NHS cases (Table II) for which there were pre- and post-scores the mean on

TABLE I

Comparison of change on Preschool Inventory (PI) during kindergarten year for NS sample.

	Mean	M_D	Sp^2	t	P
PI_1	151.01				
		42.79	613.64	15.23	$\geq .0005$
PI_3	190.19				

the Preschool Inventory (pre) was 157.85 with the post-testing 187.23. In both instances the level of difference is at an extremely high significant point. We know that children make significant academic progress within the kindergarten classrooms of the Cleveland Public Schools.

Now, the question is do HS children having had an extra stimulation experience show more progress during the kindergarten year. Table III is an examination of whether there is a significant difference between the difference distriubtions of the HS and NHS subjects. We found that the HS children showed more change than the NHS. The probability level reached less than .10 on a one tale test. suggesting that the HS group is at least moving in the direction of more overall change. Considering the many factors that were not controlled for in this study, such a change should be given special attention.

As indicated in the previous progress note (III) we have divided the Preschool Inventory into five concept areas and will be measuring the change that has occurred within particular areas. This may be helpful in locating more specifically the progress of the children during the kindergarten year.

B. Consideration of change in concept attainment as measured by teacher and observer ratings.

In this phase of the analysis we are examining the change scores[1] that occurred as we compared the series of ratings carried out by the teacher (3) and the observer (4) for the extensive sample. Tables IV through IX show the move of the children as rated by the teacher. Firstly, the concept area of grouping is the only one that shows a significant change when we compare the HS and NHS sample. Both groups show a considerable amount of positive progress.

Table VI examines the area of grouping and clearly indicates that there was visible progress in this concept area. The probability level of less than .10 suggests that the HS children as far as the teachers were concerned made more progress in this area than did the NHS children. None of the other comparisons (Tables IV, V, VII, VIII, IX) indicate a level of significant change although we find in the time sequence area that the NHS children seem to be moving in a more positive direction than the HS children. This

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[1]The criteria we used for indicating degree of change is as follows: a) positive change--at least a two point difference when examining the series of ratings, b) no change--no difference or one point difference when comparing the series of ratings. c) negative change--at least a two point difference when comparing the series of ratings. Two individuals made the determinations and where there was disagreement, the raters and principle investigator reached a group decision on the rating.

TABLE II

Comparison of change on Preschool Inventory (PI) during kindergarten year for NHS sample.

	Mean	$\bar{D}$	S_D^2	t	P
PI_2	157.85	35.067	587.89	15.20	>.0005
PI_3	187.23				

TABLE III

Comparison of HS and NHS on amoung of change during kindergarten year.

	M_D	S_D^2	t	p
HS	42.79	618.64	1.39	<.10
NHS	35.07	587.89		

TABLE IV

Comparison of HS and NHS groups on change in color concept as noted by teacher

	HS	NHS
Positive Change	40	44
No Change	54	40
Negative Change	0	0
N	94	84

$x^2 = 1.02$

$df = 1$

$p < .50$

TABLE V

Comparison of HS and NHS groups on change in form concept as noted by teacher.

	HS	NHS
Positive Change	55	46
No Change	38	37
Negative Change	0	0
N	93	83

$\chi^2 = .248$

$df = 1$

$p < .70$

TABLE VI

Comparison of HS and NHS groups on change in grouping concept as noted by teacher.

	HS	NHS
Positive Change	76	63
No Change	14	23
Negative Change	0	0
N	90	86

$\chi^2 = 3.3158$

$df = 1$

$p < .10$

TABLE VII

Comparison of HS and NHS groups on change in ordering concept as noted by teacher.

	HS	NHS
Positive Change	63	65
No Change	22	15
Negative Change	5	2
N	90	82

$\chi^2 = 2.2882$

$df = 2$

$p < .50$

TABLE VIII

Comparison of HS and NHS groups on change in time sequence concept as noted by teacher.

	HS	NHS
Positive Change	52	54
No Change	30	28
Negative Change	10	3
N	92	85

$X^2 = 3.613$

$df = 2$

$p < .20$

TABLE XX

Comparison of HS and NHS groups on change in time duration concept as rated by teacher.

	HS	NHS
Positive Change	21	17
No Change	69	65
Negative Change	0	0
N	90	82

$\chi^2 = .1687$

df = 1

$p < .70$

set of tables also yields information about where teachers observe change. In the area of color (Table IV) there was about as many children remaining the same as showing positive change. In the area of time duration (Table VIII), about 70%--80% of the children showed no change at all. Thus, this examination of the data suggests that where there was a significant difference between the HS and NHS groups that the HS group showed more progress.

The next series of tables (Table X through XV) represent the comparisons fo the HS and NHS children based on the observer ratings.

First, let me make a general observation that as one compares the changes as noted in the teacher ratings and those as noted in the observer ratings, the teachers see their children progressing more than do the observers. One factor may be that the teacher ratings were based on the general impressions of the child during the periods of time covered by the rating, and secondly that the teacher certainly is more identified with her students and would like to see more progress. Such bias has been noted in many studies using practitioners rating their own clients, etc. For the final report, a comparison will be made of the distributions to see if they are significantly different from one another.

We find that when we compare the HS and NHS children on the observer ratings that none of the relationships reach the established probability level of significance. Thus, we must conclude as far as this tapping of change is concerned that the HS and NHS children showed no difference in how they achieved in the various concept areas.

The observer ratings of the children's concept attainment are probably the most objective ratings since they were recorded samples of classroom behavior. However, it must be recognized that the observers were limited in the frequency of observation and although the teacher ratings may be more subjective the changes noted may be more valid.

Further evaluation in depth of these ratings will be completed for the final progress report.

TABLE X

Comparison of HS and NHS groups on change in color concept as noted by observer.

	HS	NHS
Positive Change	33	32
No Change	56	50
Negative Change	2	6
N	91	88

$g^2 = 2.6082$

$df = 2$

$p < .30$

TABLE XI

Comparison of HS and NHS groups on change in term concept as noted by observer.

	HS	NHS
Positive Change	23	23
No Change	66	60
Negative Change	2	4
N	91	87

$X^2 = .8604$

$df = 2$

$p < .70$

TABLE XII

Comparison of HS and NHS groups on change in grouping concept as noted by observer.

	HS	NHS
Positive Change	37	33
No Change	45	50
Negative Change	9	6
N	91	89

$\chi^2 = 1.0784$

df = 2

$p < .70$

TABLE XIII

Comparison of HS and NHS groups on change in ordering concept as noted by observer.

	HS	NHS
Positive Change	40	40
No Change	37	32
Negative Change	5	7
N	82	79

$\chi^2 = .6249$

$df = 2$

$p < .80$

TABLE XIV

Comparison of HS and NHS groups on change in time sequence concept as noted by observer.

	HS	NHS
Positive Change	35	35
No Change	41	44
Negative Change	15	8
N	91	87

$\chi^2 = 2.1596$

df = 2

$p < .50$

TABLE XV

Comparison of HS and NHS groups on change in time duration concept as noted by observer.

	HS	NHS
Positive Change	8	7
No Change	69	74
Negative Change	0	0
N	77	81

$x^2 = .1403$

$df = 1$

$p < .80$

III. Conclusion

Analysis of the data continues. There appear to be suggestions of sustained impact of the summer stimulation on the HS subjects. The particular concept areas that have been affected must be examined with an eye toward future short stimulation experiences. Should we seek to 'beef up' experiences which seem to be most readily attended to and retained by the preschool child? Or--should we seek to vary the experience with an effort to broaden the impact? Or Both!!!!